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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,089	09/08/2005	Arne Bartels	11150/88	2376

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EXAMINER	
NWUGO, OJIAKO K	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,089	BARTELS, ARNE	
	Examiner	Art Unit	
	Ojiako Nwugo	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-27* is/are pending in the application.

4a) Of the above claim(s) *25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *13-24,26 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13, 15-22, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayuki Tsuji et al, US patent application Publication 2002/0183929 in view of Amer Samman et al US patent 6737964 (Hereafter referred to as Tsuji and Samman)

Regarding **Claim 13,** Tsuji discloses in Paragraph 90 using equation 9 a method for determining the relative speed between object and vehicle given by

Vs= (Zv(N-1)-Zv(0))/.DELTA.T

Where Vs = Relative speed

Zv(0) = Position vector at time (0)

Zv(N-1) = Position vector at time (N-1)

DELTA.T = time interval between positions

This reads on the first limitation of **Claim 13,** "determining a relative speed between the object and the motor vehicle;"

As to the second limitation of **Claim 13,** "determining a travel direction of the object relative to the motor vehicle", Tsuji discloses in paragraph 88 a method for determining relative movement vector given equation 8 below

Xv (j) = (Z (j) - Zav) .times. 1 x 1 z - Xav

Yv (j) = (Z (j) - Zav) .times. 1 y 1 z - Yav

Zv (j) = Z (j)

j = 0, N - 1 (8)

As the vector extending from the position coordinates Pv(N-1) to the position coordinates Pv(0) calculated by the equations (8), the aforementioned relative movement vector can be obtained. As described above, an approximate straight line approximating the locus of relative movement of an object to the automotive vehicle 10 is calculated, based on a plurality of (N) data items of position data during a monitoring time period .DELTA.T.

As to third limitation of **claim 13,** "determining a position of the object relative to the motor vehicle", Tsuji discloses in paragraph 57 and figures 1 and 5 the use of cameras **1R** and **1L** to capture images and objects in front of the vehicle. The objects that are captured on both images are horizontally displaced from each other so that it is possible to calculate a distance from the vehicle 10 to the object.

As to the fourth limitation of **claim 13,** "warning the driver if: (a) the travel direction of the object corresponds to a travel direction of the motor vehicle; (b) the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range

boundary, the predetermined range including a zero value: and (c) the position of the object is within the warning region."

In paragraph 113 Tsuji discloses that the probability of collision is determined on condition that the expressions (10a) and (10b) are satisfied, and the warning is issued according to the position which reads on (c) "the position of the object is within the warning region." and the relative movement vector of the object. Where the expression (10a) and (10b):

$VCAR/2 \leq Vs \leq VCAR \times 3/2$ (10a)

$(|VCAR-Vs| \leq VCAR/2)$

$Zv(0)VCAR \leq T$ (10b)

are use to determine the upper and lower boundaries of relative speed about which warnings are issued which reads on (b) "the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value." Further vehicles running in opposites lanes excluded from the objects of warning. Thus only vehicles traveling in the same direction generate warning, which reads on (a) "a) the travel direction of the object corresponds to a travel direction of the motor vehicle". **With regard to the added limitations Samman discloses in fig 2 and col. 3 lines 60-67 the monitoring of a blind spot which corresponds to a predetermined warning region corresponding to a blind spot.**

It would have been obvious for one of ordinary skill at the time of the invention to incorporate the monitoring system of Samman in into Tsuji for purpose of monitoring blind spot.

Regarding **Claim 15**, "wherein the upper range boundary and the lower range boundary are functions of an initial speed of the motor vehicle" Tsuji discloses in paragraph 90 expressions 10a above. Where Vs is the relative speed and VCAR is vehicle speed. Thus upper and lower range boundaries are functions of vehicle speed.

Regarding **claim 16**, "the warning is independent of a direction of entry of the object into the warning region and is independent of a direction of exit of the object from the warning region". Tsuji discloses in paragraphs 90 and 113 as well as figure 3 and 4 that warning are generated on the basis of relative speed, distance and movement vector (travel direction) and as such Tsuji is capable of dictating all obstacles in warning region on the bases of the aforementioned criterion irrespective of direction of entry into the warning region. **With regard to the added limitations Samman discloses in fig 2 and col. 3 lines 60-67 the monitoring of a blind spot which corresponds to a predetermined warning.**

Regarding **Claim 17**, "The warning is independent of a background of the object that enters the warning region and is independent of standing objects, an alignment of standing objects and a background of the standing objects". Tsuji in paragraph 114 discloses that the probability of collision between object and vehicle is determined based on the movement vector calculated. A warning is generated depending on the high probability of collision as disclosed in

paragraph 12. Thus it is inherent that all objects that generate warning must be moving eliminating all standing objects.

Regarding **claim 18 and 19,** "classifying driving situations, each classified driving situation including information as to whether the warning be performed if an object enters the warning region; determining a current driving situation of the motor vehicle and the object; ascertaining the classified driving situation that corresponds to the current driving situation; and activating a warning function that corresponds to the classified driving situation ascertained in the ascertaining step" and "wherein the driving situations classified in the classifying step include information relating to two lanes lateral to a lane of the motor vehicle". From the application specification the classification process for driving situation in a nutshell determines whether an object meets the criterion for issuing a warning as addressed in **claim 13** above. As such does not further limit **claim 13**?

Further Tsuji discloses in figures 3 and 4 a flow chart, which determines how and when warnings are issued. Tsuji detects objects around the vehicle and issues warming with criterion mention in **claim 13**, which necessarily includes the two lanes lateral to lane of the vehicle if the vehicle situated in such a way that it has two lanes lateral to its lane.

With regard to the added limitations to claim 18 Samman discloses in fig 2 and col. 3 lines 60-67 the monitoring of a blind spot which corresponds to a predetermined warning.

Regarding **Claim 20**, Tsuji discloses all the limitations of claim 20 as applied to claim 13 except monitoring both sides. Samman discloses in col. 3 lines 1-3 cameras mounted on the passenger side to monitor blind spot as well.

Regarding **claim 21**, "comprising one of (a) recording and (b) calculating an angle as an input variable for the warning in a travel plane of the motor vehicle substantially corresponding to the travel direction of the motor vehicle and a straight line that spans a sensor apparatus adapted to monitor the warning region and the object."

Tsuji discloses in paragraph 72 and in figure 2, step S20 in which the yaw rate is read into a recording device and from there is integrated over time thus yielding the angle of turn in theta radians is calculated as shown in figure 14 and used as a variable in the input determination process. **With regard to the added limitations Samman discloses in fig 2 and col. 3 lines 60 - 67 the monitoring of a blind spot which corresponds to a predetermined warning.**

Regarding **Claim 22,** Tsuji discloses in Paragraph 53 and 55 cameras 1L and 1R which in conjunction with the image processing unit 2 provides objects relative position, relative direction and relative speed.

The image processing unit 2 disclosed in paragraphs 55 corresponds to a control unit adapted to evaluate determined data.

In paragraph 53 disclosed is a speaker fro generating voice alarms which corresponds to a warning system configured to output a warning signal to the driver as a function of evaluation of the determined data.

With regard to added limitations claim 22, "warning signal if: (a) the travel direction of the object corresponds to a travel direction of the motor vehicle; (b) the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value: and (c) the position of the object is within the warning region."

In paragraph 113 Tsuji discloses that the probability of collision is determined on condition that the expressions (10a) and (10b) are satisfied, and the warning is issued according to the position which reads on (c) "the position of the object is within the warning region." and the relative movement vector of the object. Where the expression (10a) and (10b):

$VCAR/2 \leq Vs \leq VCAR \times 3/2$ (10a)

($|VCAR-Vs| \leq VCAR/2$)

$Zv(0)VCAR \leq T$ (10b)

are use to determine the upper and lower boundaries of relative speed about which warnings are issued which reads on (b) "the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value." Further vehicles running in opposites lanes excluded from the objects of warning. Thus only vehicles traveling in the same direction generate warning, which reads on (a) "a) the travel direction of the object corresponds to a travel direction of the motor vehicle". Further Samman discloses in fig 2 and col. 3 lines 60-67

the monitoring of a blind spot which corresponds to a predetermined warning.

It would have been obvious for one of ordinary skill at the time of the invention to incorporate the monitoring system of Samman in into Tsuji for purpose of monitoring blind spot.

Regarding **Claim 26,** Tsuji and Samman discloses all the limitation **claim 26** as applied **claim 22** including in Paragraph 90 using equation 9 a method for determining the relative speed between object and vehicle given by

Vs = (Zv(N-1)-Zv(0))/.DELTA.T

Where Vs = Relative speed

Zv (0) = Position vector at time (0)

Zv (N-1) = Position vector at time (N-1)

DELTA.T = time interval between positions

This reads on the first limitation of **Claim 26,** "determining a relative speed between the object and the motor vehicle;"

As to the second limitation of **Claim 26,** "determining a travel direction of the object relative to the motor vehicle", Tsuji discloses in paragraph 88 a method for determining relative movement vector given equation 8 below

Xv (j) = (Z (j) - Zav) .times. 1 x 1 z - Xav

Yv (j) = (Z (j) - Zav) .times. 1 y 1 z - Yav

Zv (j) = Z (j)

j = 0 , N - 1 (8)

As the vector extending from the position coordinates Pv(N-1) to the position coordinates Pv(0) calculated by the equations (8), the aforementioned relative movement vector can be obtained. As described above, an approximate straight line approximating the locus of relative movement of an object to the automotive vehicle 10 is calculated, based on a plurality of (N) data items of position data during a monitoring time period .DELTA.T.

As to third limitation of **claim 26,** "determining a position of the object relative to the motor vehicle", Tsuji discloses in paragraph 57 and figures 1 and 5 the use of cameras **1R** and **1L** to capture images and objects in front of the vehicle. The objects that are captured on both images are horizontally displaced from each other so that it is possible to calculate a distance from the vehicle 10 to the object.

As to the fourth limitation of **claim 26,** "warning the driver if: (a) the travel direction of the object corresponds to a travel direction of the motor vehicle; (b) the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value: and (c) the position of the object is within the warning region."

In paragraph 113 Tsuji discloses that the probability of collision is determined on condition that the expressions (10a) and (10b) are satisfied, and the warning is issued according to the position which reads on (c) "the position of the object is within the warning region." and the relative movement vector of the object. Where the expression (10a) and (10b):

$VCAR/2 \leq Vs \leq VCAR \times 3/2$ (10a)

$(|VCAR-Vs| \leq VCAR/2)$

$Zv(0)VCAR \leq T$ (10b)

are use to determine the upper and lower boundaries of relative speed about which warnings are issued which reads on (b) "the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value." Further vehicles running in opposites lanes excluded from the objects of warning. Thus only vehicles traveling in the same direction generate warning, which reads on (a) "a) the travel direction of the object corresponds to a travel direction of the motor vehicle".

Regarding **Claim 27,** Tsuji discloses in Paragraph 53 and 55 cameras 1L and 1R which in conjunction with the image processing unit 2 provides objects relative position, relative direction and relative speed.

The image processing unit 2 disclosed in paragraphs 55 corresponds to a control unit adapted to evaluate determined data.

In paragraph 53 disclosed is a speaker fro generating voice alarms which corresponds to a warning system configured to output a warning signal to the driver as a function of evaluation of the determined data.

Further with regards to the limitation, "warning the driver : (a) the travel direction of the object corresponds to a travel direction of the motor vehicle; (b) the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the

predetermined range including a zero value: and (c) the position of the object is within the warning region."

In paragraph 113 Tsuji discloses that the probability of collision is determined on condition that the expressions (10a) and (10b) are satisfied, and the warning is issued according to the position which reads on (c) "the position of the object is within the warning region." and the relative movement vector of the object. Where the expression (10a) and (10b):

$VCAR/2 \leq Vs \leq VCAR \times 3/2$ (10a)

$(|VCAR-Vs| \leq VCAR/2)$

$Zv(0)VCAR \leq T$ (10b)

are use to determine the upper and lower boundaries of relative speed about which warnings are issued which reads on (b) "the relative speed between the object and the motor vehicle is within a predetermined range bounded by a lower range boundary and an upper range boundary, the predetermined range including a zero value." Further vehicles running in opposites lanes excluded from the objects of warning. Thus only vehicles traveling in the same direction generate warning, which reads on (a) "a) the travel direction of the object corresponds to a travel direction of the motor vehicle". **With regard to the added limitation, Samman discloses in fig 2 and col. 3 lines 60-67 the monitoring of a blind spot which corresponds to a predetermined warning.**

It would have been obvious for one of ordinary skill at the time of the invention to incorporate the monitoring system of Samman in into Tsuji for purpose of monitoring blind spot.

Claim14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji and Samman in view of Zoltan G Sztankay U.S Patent 3891966. (Hereafter referred to as Sztankay)

Regarding **claim 14** Tsuji and Samman discloses all the limitations of the **claim14** as applied to **claim 13** with exception of "comprising generating a warning if the relative speed is greater than the upper range boundary."

Sztankay discloses in column 2 lines 47-52, in which the signal processor the range and closure (relative) velocity of a car and an alarm 5 may be activated if the range or closure (relative) velocity fall outside a predetermine limits which includes upper limits

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tsuji with Sztankay to avoid collision as taught by Sztankay.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji and Samman in view of George Hsu et al US Patent application 2001/0013835.(Hereafter referred to as Hsu)

Regarding **Claim 23** Tsuji and Samman discloses all the limitations as applied **claim 23** as applied to claim 22 except for driving pattern comparison. Hsu discloses in paragraph 71 the comparing of current driving pattern to stored pattern.

It would have been obvious for one of ordinary skill at the time of the invention to incorporate the driving pattern comparison teaching of Hsu into Tsuji and Samman for purpose of determining alertness as taught by Hsu.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji and Samman in view of Milton Halsted US Patent Application 2002/0082777 (Hereafter after referred to Halsted).

Regarding **Claim 24** Tsuji and Samman discloses all the limitation of claim 24 as applied to claim 22 except for sensor mounted on side mirror, rear bumper and in an outer mirror and rear light. Halsted discloses in paragraph 35 sensor 12 and 14 that may be mounted on the various position on the car including side mirror, rear bumper, outer mirror and rear light.

It would have been obvious for one of ordinary skill at the time of the invention to incorporate the teaching of mounting sensors in the various positions as indicated by Halsted for purpose of achieving maximum spatial coverage.

Conclusion

Applicant's arguments with respect to **claim13- 27** have been considered but are moot in view of the new ground(s) of rejection.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ojiako Nwugo whose telephone number is (571) 272 9755. The examiner can normally be reached on M - F 7.30am - 5.00pm EST, Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass can be reached on (571) 272 2981. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OKN

DAVETTA W. GOINS
PRIMARY EXAMINER